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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,169	11/17/2003	Inn-Sung Lee	21C-0095	4082

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EXAMINER	
HOLTON, STEVEN E	
ART UNIT	PAPER NUMBER
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/715,169	LEE ET AL.	
	Examiner	Art Unit	
	Steven E. Holton	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-13,19 and 21-23* is/are rejected.

7)☒ Claim(s) *4-8,14-18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 4/16/2007. Claims 1-23 are currently pending in the application. An action follows below:

Claim Objections

2. Claims 3, 6, and 16 are objected to because of the following informalities: Regarding claim 3, line 6, the claim states "a transforming part that transforming the first alternating current...". The Examiner notes that it should read "a transforming part that transforms the first alternating current...". This change could make the claim similar to the language of claim 13.

Regarding claims 6 and 16, the final limitation states, "an adding section that sums the currents that flow in each of the lamps to provide the power supplying part". The Examiner notes that the adding section does not provide the power supplying part, but the adding section provides the power supplying part with a feedback signal made of the sum of the currents flowing in each lamp. The Examiner recommends using language similar to the first limitation of claim 6 to indicate that the adding section sums the currents to produce a feedback signal (shown in Figs. 1 and 5 as signal P2) to the power supply part.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 9-12, 21, and, 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams (USPN: 6127785).

Regarding claim 1, Williams discloses a lamp driving device including, "a power supplying part (Fig. 3, elements 35, 120, and 125) that provides a plurality of lamps electrically connected in parallel (Fig. 4b, elements 15A and 15B) to each other with power; and a feedback detection part receiving current that flows via the lamps (Fig. 4B, elements 144 and 130 and Fig. 3, element 125) to provide the power supply with a feedback signal that prevents the power supplying part from providing normal lamps with power, when at least one of the lamps is abnormal (col. 6, lines 28-44 and col. 8, line 63 – col. 9, line 10)."

Regarding claim 2, Williams discloses, "wherein the feedback detection part sums the currents that flow in each of the lamps to form a summed current, and the feedback detection part provides the power supplying part with the summed current (Fig. 4B, the currents that flow through the lamps sum together and travel through element 144 to the feedback unit that provides a feedback current FB based on the summed current; col. 9, lines 1-10)".

Regarding claim 9, Williams discloses a feedback detection system that would detect the opening of the lamps (col. 6, lines 28-44). The Examiner notes that the feedback system show in Fig. 4B would react to a highly changed current flow if one of the lamps were opened or shorted. As one lamp becomes open the current flow would decrease which would result in an increasing power supply to provide more power to the lamps.

Regarding claim 10, Williams discloses the feedback detection part controlling the current that flows in each lamp (col. 6, lines 28-44). By controlling the main current that is sent to all lamps, all of the lamp currents are controlled.

Regarding claim 11, the Examiner notes includes the limitations of claim 1 and adds a receiving container for housing the lamps and driving part of the invention. Williams discloses the power supply and lamp system could be used as backlights for display devices and other uses (col. 1, lines 24-40). Therefore, it would inherent to provide a housing or receiving container to house the lamp and power system of Williams if it is used as a backlight for a computer display or some other type of lighting system.

Regarding claim 12, Williams discloses, "wherein the feedback detection part sums the currents that flow in each of the lamps to form a summed current, and the feedback detection part provides the power supplying part with the summed current (Fig. 4B, the currents that flow through the lamps sum together and travel through element 144 to the feedback unit that provides a feedback current FB based on the summed current; col. 9, lines 1-10)".

Regarding claim 21, Williams discloses the lamps being cold cathode fluorescent lamps (col. 9, lines 36-41).

Regarding claim 22, the Examiner notes that this claim is similar to claims 1 and 11, but includes limitations of a liquid crystal display and using the lamps as part of a backlight assembly for the display and the limitation of summing the currents that flow in each lamp as part of the feedback. Williams discloses using the lamps and power as part of a backlight or side-light system for a liquid crystal display device (col. 4, lines 22-33 and col. 1, lines 24 – 32). Williams further discloses the feedback detection part sums the currents from each of the parallel lamps to form a summed current (col. 9, lines 1-10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams.

Regarding claims 19 and 23, the Examiner notes that Williams teaches all of the limitations except, "the feedback detection part is formed on a printed circuit board". The Examiner takes Official Notice that forming circuits on printed circuit boards is well-known in the art, and at the time of invention it would have been obvious to one skilled

in the art to form the feedback circuit on a printed circuit board. It would have been obvious to one skilled in the art that the circuit described by Williams could be formed on a printed circuit board for placement within a display housing or other type of enclosure rather than being built using standard wiring and other types of circuit components. Further, the attachment of the printed circuit board to different elements within a display housing would be a matter of design choice based on the size and shape of the housing, lamps, and circuit boards along with considerations such as heating and cooling requirements and protection from jarring forces such as external hits and dropping of a housing. Thus, it would have been obvious to one skilled in the art to print the feedback circuit on a printed circuit board and attach it to the lamps or other components of a backlight assembly.

5. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams in view of Lin (USPN: 6259615).

Regarding claim 3, as discussed above, Williams discloses all of the limitations and further discloses, "an inverting part that transforms the direct current into a first alternating current (Fig. 1, element 20; Fig. 3, element 120); a transforming part that transforming the first alternating current that is in a low level state to a second alternation current that is in a high level state to provide the lamps with the second alternating current (Fig. 4B, element 121)".

However, Williams does not expressly disclose "a first switching part that connects or opens a current path through which a direct current provided form an

external device flows" or "a first switching control part that provides the first switching part with a first switching control signal to turn off the first switching part, when the first switching control part receives the feedback signal from the feedback detection part".

,Lin discloses a power supply system with a first switching part that opens the current path which the direct current is provided from an external source (Fig. 2, element 80 is the switching part; element 12 provides the direct current from the battery power source). Lin provides a transforming portion to transform the direct current into an alternating current (Fig. 2, elements 30, 40, 50, and 80) and a switching control part that receives feedback for controlling the switching (Fig. 2, elements 42 and 62 provide feedback to elements 22 and 38).

At the time of invention it would have been obvious to one skilled in the art to modify the teachings of Williams with the teachings of Lin to include a feedback control part and switching part connecting the current path from an external device. The motivation would have been to increase the efficiency and reliability of a lamp driving system for liquid crystal display backlighting systems (Lin, col. 2, lines 8 – 17). Thus it would have been obvious to one skilled in the art that the feedback system of Williams could be modified to use the feedback system of Lin to control the power supply from the parallel lamp configuration of Williams in place of the feedback system described by Williams to produce a device as described in claim 3.

Regarding claim 13, the Examiner notes that the limitations of this claim are similar to claim 3 and the arguments for claim 3 can be applied to claim 13.

Allowable Subject Matter

6. Claims 4-8, 14-18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Further, the above objections to minor informalities would need to be addressed to place some of the claims into allowable form.

Regarding claims 4 and 14, the closest prior art describes various feedback circuits but fail to fully disclose the circuit described in claims 4 and 14.

Regarding claims 5 and 15, the closest prior art provides a single switch for removing the current flowing from the direct current input to the transforming and inverting portions. The prior art fails to disclose "a second switching part that connects or opens a current path through which a direct current provided form the first switching part device flows toward the inverting part" and a second switching control part for controlling the second switching part based on received feedback signals.

Regarding claims 6 and 16, the closest prior art fails do disclose "an AND operation section that receives currents that flow each of the lamps, so that the AND operation section provides the power supplying part with the feedback signal when one of the currents is out of a predetermined range" and an adding section that sums the currents that flow each of the lamps to provide the power supplying part".

Regarding claim 19, the closest prior art fails to disclose a first container with a first sidewall and a second container to be held inside the first container so that the

printed circuit board is between the first and second sidewalls when connected to the lamps.

Response to Arguments

7. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection based on newly found prior art.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
July 6, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER